ONTARIO DEPARTMENT OF EDUCATION
APPLIED ARTS AND TECHNOLOGY BRANCH

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ADVANCED TECHNICAL EVENING CLASS PROGRAM

REQUIREMENTS FOR CERTIFICATES

THIS BOOK REPLACES
A.T.E.C. NO. 1-1965

A.T.E.C. NO. 1-1968

Advanced Technical Evening Class Program

FOREWORD

The Advanced Technical Evening Class programs, established in 1952 have been revised several times. The main objective of the modifications which appear in this booklet is to increase the flexibility of the program by extending the number and variety of subjects offered to persons, presently employed, who wish to continue their education as part-time students. The following list and the chart on pages 12 and 13 will illustrate the variety of purposes that the revised program may serve

1. to meet the requirements for Advanced Technical Evening Class certificates at one or more of the three levels,
2. to meet the requirements of the student who wishes to improve his knowledge in specific subjects even though he does not intend to complete the total requirements for a certificate. For example an individual may wish to study one or more subjects which will be of immediate value in his present employment or he may wish to study individual subjects leading towards certification at a higher level in certification programs for technicians and technologists administered by associations such as the Association of Professional Engineers of Ontario,
3. to meet the requirements for the certificate awarded after successful completion of a one-year technical program in a college of applied arts and technology (page 3, note 2),
4. to meet the admission requirements to the second year (third semester) of a two-year technician program offered as a regular day-school program in a college of applied arts and technology (top of page 4, note 3),

5. to meet the admission requirements to the second year (third semester) of a three-year technology program offered as a regular day-school program in a college (page 4, note 4),
6. to meet the educational requirements for certification by the Association of Professional Engineers of Ontario as an engineering technician (page 4, note 5),
7. to meet the admission requirements to the third year (fifth semester) of a three-year technology program offered as a regular day-school program in a college (page 4, note 1),
8. to meet the requirements for a two-year technician diploma of the regular day-school program in a college (page 4, note 2),
9. to meet the educational requirements for certification by the A.P.E.O. as a senior engineering technician (bottom of page 4, note 3),
10. to meet the requirements for a three-year technology diploma of the regular day-school program in a college (page 5, note 1),
11. to meet the educational requirements for certification by the A.P.E.O. as an engineering technologist (page 5, note 2),
12. to permit a graduate of a two-year engineering technician program of a college or of a former institute of trades or Ontario vocational centre to meet the educational requirements for certification by the A.P.E.O. as an engineering technologist after completing further subjects at an appropriate level (page 5, note 4).

The relationship between the Advanced Technical Evening Class program and the certification program of the A.P.E.O., referred to above, has been established over a period of years. Shown on pages 10 and 11 of this booklet is a special program, developed in co-operation with the Chemical Institute of Canada, which meets the educational requirements at each of the three levels of certification. Other bodies such as the Association of Ontario Land Surveyors, the Ontario Association of Architects and the Ontario Institute of Certified Cartographers have established or are considering the establishment of similar certification programs.

REQUIREMENTS FOR ADMISSION

GRADE 1 CERTIFICATE

The minimum entrance requirement is the Ontario Secondary School Graduation Diploma obtained after successful completion of any Grade 12 (Ontario) course, provided that the applicant has passed the mathematics and science subjects of Grades 11 and 12, or has the equivalent standing from other provinces or countries.

Applicants over 19 years of age may be admitted provided that they have passed English, mathematics, and the science subjects of Grades 11 and 12

(a) in the Ontario secondary school program, or

(b) in the Ontario Manpower Retraining program, or

(c) in an upgrading program offered in a college of applied arts and technology, or

(d) provided that they can submit evidence satisfactory to the college that they are potentially capable of benefiting from the instruction.

GRADE 2 CERTIFICATE

Successful completion of the requirements for the Grade 1 certificate or an equivalent qualification.

GRADE 3 CERTIFICATE

Successful completion of the requirements for the Grade 2 certificate or an equivalent qualification.

REQUIREMENTS FOR CERTIFICATES

GRADE 1 CERTIFICATE (nine subjects)

A Grade 1 certificate will be awarded to a student who completes successfully English I, mathematics I, physics I or mechanics I and six other subjects except English II.

Note: 1. Both physics I and mechanics I may be taken as two of the required nine subjects.

2. A student who completes successfully the requirements for a Grade 1 A.T.E.C. certificate in subjects specified by a college may be awarded the appropriate certificate of the college.

3. A student who completes successfully a Grade 1 A.T.E.C. certificate program in subjects specified by the college may be admitted directly to the second year of a cognate technician program offered by the college.

4. A student who completes successfully English I, mathematics I, mathematics II, physics I, mechanics I, general chemistry, electrical fundamentals, electronic fundamentals and technical drawing I or a similar Grade 1 certificate program specified by the college may be admitted directly to the second year of a cognate engineering technology program in a college.

5. Mathematics I, and physics I or mechanics I plus five technical subjects at any level are accepted as the educational requirement for certification as an engineering technician by the A.P.E.O. Normally four of the five technical subjects should be related to the area of specialization; mathematics II may be used as one of the technical subjects. Proposed deviations from the above requirements should be cleared with the A.P.E.O.

GRADE 2 CERTIFICATE

A Grade 2 certificate will be awarded to a student who completes successfully English II, mathematics II and four other subjects selected from those appearing under the heading "Subjects at the Grade 2 and Grade 3 Certificate Levels" shown on the following pages.

Note: 1. A student who completes successfully the requirements for a Grade 2 A.T.E.C. certificate in subjects specified by a college may be admitted directly into the third year of a cognate technology program offered by the college. For this option the student must have completed successfully mathematics III.

2. A student who completes successfully the requirements for a Grade 2 certificate in subjects specified by a college may be awarded the appropriate technician diploma of the college.

3. A student who completes successfully seven subjects, including English I and mathematics II, in addition to the seven subjects referred to in note 5, page 4 will meet the educational requirements for certification as a senior engineering technician with the A.P.E.O. provided that at least six of the total of fourteen subjects are selected from those appearing under the heading "Subjects at the Grade 2 and Grade 3 Certificate Levels" shown on

the following pages. Normally five of the six subjects should be related to the area of specialization. Proposed deviations from the above requirements should be cleared with the A.P.E.O.

GRADE 3 CERTIFICATE

A Grade 3 certificate will be awarded to a student who completes successfully mathematics III and any five additional subjects selected from those appearing under the heading "Subjects at the Grade 2 and Grade 3 Certificate levels".

Note: 1. A student who completes successfully the requirements for a Grade 3 certificate in subjects specified by a college may be awarded the appropriate technology diploma of the college.

2. A student who wishes to meet the educational requirements for certification as an engineering technologist, may do so by selecting appropriate subjects at each of the three certificate levels of the A.T.E.C. program. The educational requirements for certification as an engineering technologist as published by the A.P.E.O. are included in the appendix (see pages 17-24). Students are advised to study these requirements carefully and to clear any deviations in their proposed programs with the A.P.E.O.

3. A student who is a member of O.A.C.E.T.T. and who proposes to use the technical report written for English II as the report for certification should submit, for approval, the topic and a one-page synopsis to the Registrar, O.A.C.E.T.T., 236 Avenue Road, Toronto 5, Ontario. After the report has been assessed by the instructor it should be submitted to the Registrar for approval of the technical content. The report must show a technical and mathematical depth of understanding of the selected topic. It is suggested that the instructor in English II should submit the topics and synopses, in one mailing, for all students who are members of O.A.C.E.T.T.

4. A graduate of an approved two-year engineering technician program offered in a college will meet the educational requirements for certification as a senior engineering technician by the A.P.E.O. A graduate wishing to complete the educational requirements for certification as an engineering technologist should write to the Association for details of the additional A.T.E.C. subjects which he will be required to complete.

SUBJECTS AT THE GRADE 1 CERTIFICATE LEVEL

SUBJECTS (Alphabetically)	RECOMMENDED PREREQUISITES (or the permission of the course director)
Air Conditioning I	
Architectural Drafting I	
Building Construction I	
Cartography I	
Construction Methods and Materials I	
Descriptive Geometry	Technical Drawing I
D. C. Machines	Electrical Fundamentals
Electrical Drafting	
Electrical Fundamentals	Mathematics I
Electronic Fundamentals	Electrical Fundamentals
English I	
Foundry Technology I	
General Chemistry	
Geology I	
Industrial Hydraulics I	
Instrumentation I	
Legal Surveying	
Mathematics I	
Mechanical Installations I	
Mechanics I	Mathematics I
Mineralogy I	
Physics I	Mathematics I
Quantity Surveying I	Construction Methods and Materials
Refrigeration I	
Survey Computations and Drafting	
Surveying I	Survey Computations and Drafting Mathematics I
Technical Drawing I	
Welding Technology I	
Workshop Technology I	

Subjects may be added to the above list as the need arises. Requests by colleges for approval of additional subjects should be sent to the Director, Applied Arts and Technology Branch, Department of Education, 55 Eglinton Avenue East, and should be accompanied by a detailed course outline.

SUBJECTS AT THE GRADE 2 AND GRADE 3 CERTIFICATE LEVELS

SUBJECTS (Alphabetically)	RECOMMENDED PREREQUISITES (or the permission of the course director)
English II (Report)	English I
Mathematics II	Mathematics I
Mathematics III	Mathematics II
Mathematics IV (one of the following):	Mathematics III
(a) Advanced Calculus, or	Mathematics III
(b) Numerical Methods and Digital Computations, or	Mathematics III
(c) Statistics I	Mathematics II
Economics	
Industrial Management	
A. C. Circuits	Electrical Fundamentals Mathematics II
Computer Control	Electronic Fundamentals Mathematics IV (Advanced Calculus or Numerical Methods and Digital Computations)
Electrical Control Systems I	A. C. Circuits Electrical Equipment
Electrical Control Systems II	Electrical Control Systems I Mathematics IV (Advanced Calculus)
Electrical Equipment	A. C. Circuits
Electrical Measurements	A. C. Circuits
Electronic Circuits	Electronic Fundamentals
Industrial Electronics	Electronic Circuits
Power Systems	A. C. Circuits Electrical Equipment
Boolean Algebra and Digital Computers	Mathematics III
Communications	Electronic Circuits Mathematics IV (Advanced Calculus)
Communications Systems	Communications Pulse Circuits
Computer Technology	Boolean Algebra and Digital Computers Pulse Circuits

Electronic Circuits	Electronic Fundamentals A. C. Circuits
Electronic Instrumentation	Pulse Circuits
Electronic Systems	Pulse Circuits
Feedback Control Systems	Computer Technology
Pulse Circuits	Electronic Circuits Mathematics III
Solid State and Component Technology	Physics I Electrical Fundamentals
Data Processing	Introduction to Computers Numerical Analysis
Electrical Systems	Electrical Fundamentals
Industrial Organization	
Industrial Psychology	
Industrial Relations	
Introduction to Computers	Mathematics I
Jigs and Fixtures	Technical Drawing I
Machine Design	Mechanics of Materials I Mechanics II Technical Drawing I
Management Accounting	Mathematics I
Statistics II	Statistics I
Numerical Analysis	Introduction to Computers
Mechanics II	Mechanics I Mathematics III
Metrology	Mathematics I Technical Drawing I
Operations Research	Statistics I Mathematics III
Plant Layout and Materials Handling	
Production Control	Mathematics I
Quality Control	Statistics I
Systems and Procedures	
Tool Design I	Mechanics of Materials I Technical Drawing I
Value Engineering	
Wage and Salary Administration	
Work Study	Mathematics I
Foundry Technology II	Foundry Technology I
Mechanics of Fluids	Mechanics II

Mechanics of Materials I	Mechanics I Mathematics II
Mechanics of Materials II	Mechanics of Materials I Mathematics III
Metallurgy	General Chemistry (Preferably)
Theory of Machines	Mechanics II
Thermodynamics	Physics I Mathematics III
Workshop Technology II	Workshop Technology I Mathematics II
Mechanics of Fluids (Civil Technology)	Mechanics II
Soil Mechanics and Foundations	Mechanics of Materials II
Construction Materials	Mechanics of Materials I
Theory of Simple Structures	Mechanics of Materials II
Technical Drawing (Civil)	
Structural Design in Reinforced Concrete	Mechanics of Materials II
Structural Design in Steel	Mechanics of Materials II
Structural Design in Timber	Mechanics of Materials II
Sanitary Technology	Mechanics of Fluids
Highway Technology	Surveying I and Mathematics II
Photogrammetry and Air Photo Interpretation	Surveying I and Mathematics II
Welding Technology (Civil)	
Surveying II	Surveying I Mathematics II
Refrigeration II	Refrigeration I
Air Conditioning II	Air Conditioning I
Technical Drawing II	Technical Drawing I
Quantity Surveying II	Quantity Surveying I
Mechanical Installations II	Mechanical Installations I
Tool Design II	Tool Design I
Building Construction II	Building Construction I
Survey Computations and Drafting II	Survey Computations and Drafting I
Construction Methods and Materials II	Construction Methods and Materials I
Instrumentation II	Instrumentation I Mathematics I Physics I

Instrumentation III	Instrumentation II
Cartography II	Cartography I
Legal Surveying	
Architectural Drafting II	Architectural Drafting I
Geology II	Geology I Physics I
Mineralogy II	Mineralogy I Physics I

Subjects may be added to the above list as the need arises.

SYLLABUS FOR CHEMICAL TECHNOLOGY

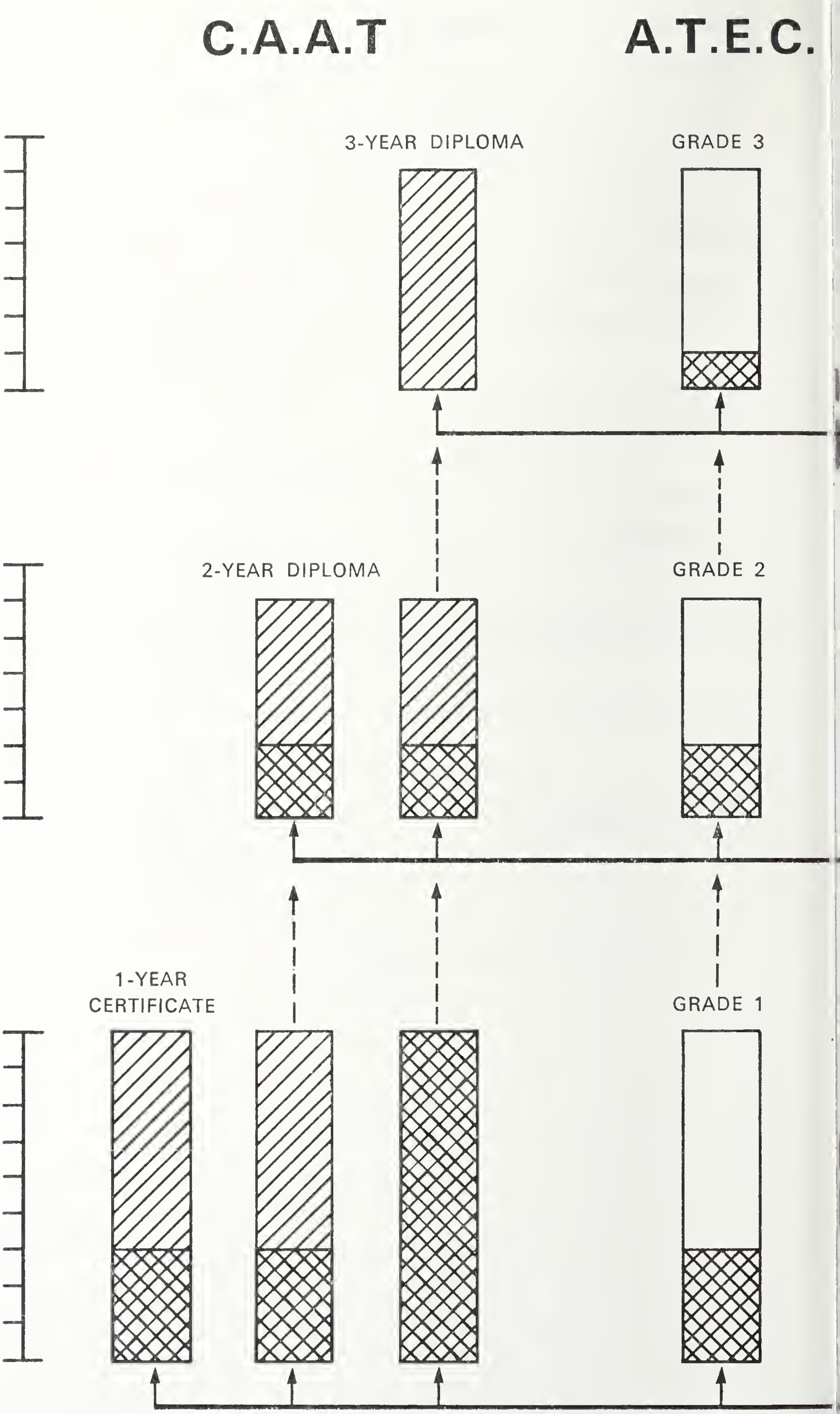
The Committee on Certification of Chemical Technicians sponsored by the Chemical Institute of Canada has accepted the Advanced Technical Evening Class program in Chemical Technology as meeting the educational requirements for certifying Chemical Technicians and Technologists.

The certification is as follows:

Grade 1 A.T.E.C. certificate — Chemical Technician
Grade 2 A.T.E.C. certificate — Senior Chemical Technician
Grade 3 A.T.E.C. certificate — Chemical Technologist

SUBJECTS (Alphabetically)	RECOMMENDED PREREQUISITES (or the permission of the course director)
English I	
Mathematics I	
Mathematics II	Mathematics I
Physics I	Mathematics I
Electrical Fundamentals	Mathematics I
General Chemistry	
Organic Chemistry I	General Chemistry
Inorganic Chemistry	General Chemistry
Physical Chemistry I	General Chemistry and Mathematics I
Electronic Fundamentals	Electrical Fundamentals
English II (Technical Report)	English I
Mathematics III	Mathematics II

Mathematics IV (one of the following):	
(a) Advanced Calculus, or	Mathematics III
(b) Numerical Methods and Digital Computations, or	Mathematics III
(c) Statistics I	Mathematics II
Chemical Physics	Physics I and Mathematics III
Organic Chemistry Laboratory	Organic Chemistry I
Physical Chemistry II	Physical Chemistry I and Mathematics IV (Calculus)
Physical and Instrumental Methods Laboratory	Physical Chemistry I, Electrical Fundamentals, and Mathematics IV (Calculus)
Quantitative Inorganic Analysis Laboratory	Inorganic Chemistry, Physical Chemistry I, Organic Chemistry I, and Mathematics III
Chemical Engineering Principles	Inorganic Chemistry and Physical Chemistry II
Industrial Chemical Processes	Inorganic Chemistry, Organic Chemistry I, and Physical Chemistry II
Organic Chemistry II	Organic Chemistry Laboratory, Inorganic Chemistry, and Mathematics III



NOTE: 1. This chart illustrates the inter-relationship of: (a) certain regular d
Technical Evening Class programs, and (c) the certification progra

2. Students having the necessary prerequisites may commence at th

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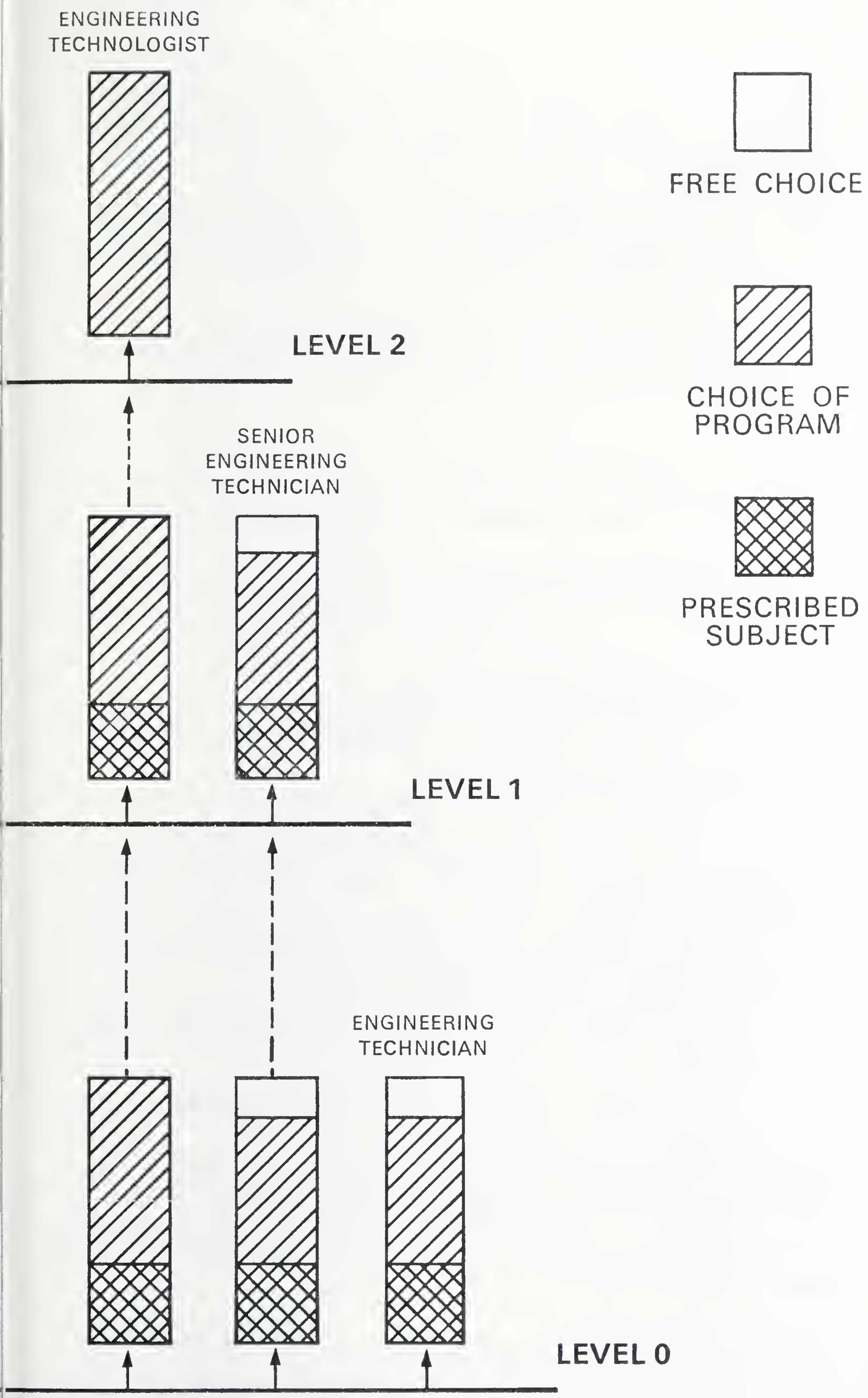

hool programs in the colleges, (b) the Advanced
he A.P.E.O.
ropriate level.

CREDITS

1. Credits toward a certificate, based on previous qualifications, may be established by the college. These credits do not become effective until the student completes the requirements for a certificate.

2. An applicant for credit must supply adequate proof that he has completed satisfactorily a study of the subject or subjects for which he expects credit.

3. A maximum of six credits only may be allowed towards the Grade 1 certificate, and four only for each of the Grade 2 and Grade 3 certificates.

4. Credits already established in subjects formerly approved but not included in this booklet may be applied towards an A.T.E.C. certificate.

5. The following credits may be allowed on presentation of proof of standing in the Grades 11, 12 or 13 subjects shown in the following list:
   English I: Grade 13 English Composition;
   Mathematics I: Grade 13 Algebra, Trigonometry and Statics, or Mathematics A or Mathematics B;
   Mathematics II: Grade 13 Algebra, Trigonometry and Statics, and Geometry, or Mathematics A and Mathematics B;
   Physics I: Grade 13 Physics, or Grades 11 and 12 Industrial Physics as the technical subject;
   General Chemistry: Grade 13 Chemistry, or Grades 11 and 12 Industrial Chemistry as the technical subject;
   Electrical Fundamentals: Grades 11 and 12 Electricity as the technical subject;
   Electronic Fundamentals: Grades 11 and 12 Electronics as the technical subject;
   Technical Drawing: Grades 11 and 12 Mechanical Drafting as the technical subject;
   Workshop Technology: Grades 11 and 12 Machine Shop as the technical subject.

6. Grade 12 graduates of the five-year program of the Science, Technology and Trades Branch of the secondary school program may be allowed one credit in the technical subject in which they specialized in Grades 11 and 12.

7. In special cases such as those listed below, where assessments are difficult, the college
    1. may require the applicant to write a qualifying examination,

       or

    2. may permit the applicant to take another subject for which the subject under assessment is a direct prerequisite. If the student is successful in the advanced subject, he will be granted credits in both the advanced subject and its direct prerequisite. If there is doubt concerning a credit in Mathematics I, for example, a pass in Mathematics II would establish credits in both Mathematics I and II.

    Examples of special cases:

    Students who have attended other evening courses of at least 50 hours' duration;
    Students who have completed correspondence courses of at least 100 hours' duration;
    Students who are over 22 years of age and have had at least three years' industrial experience related to the subject in which credit is desired.

STANDARDS

The instructional time for each subject must be at least 50 hours exclusive of final examinations. Regular tests and examinations are a part of the course in each subject. The passing grades should be comparable to those established by the college for the regular day school programs. With the approval of the college, any book listed as a reference text in the course outline or any book used in a similar day school subject may be used as the text book in the subject.

Course outlines have been prepared for the subjects listed in this booklet. It is suggested that these outlines be interpreted by the college to suit the special requirements of particular classes.

PREREQUISITES

It is the responsibility of the college to ascertain that a student has completed the necessary prerequisites before admitting him to classes in any subject of the course.

ASSIGNMENTS

During the instructional periods, the instructor should plan to use one-third to one-half of the time assisting with individual and class problems which arise. The instructor should also assign homework. The length of time to be spent on this assignment should be approximately equal to that spent in the classroom. These assignments should be corrected and the marks recorded by the instructor.

ADMINISTRATION

The college is responsible for the administration of the program and for keeping permanent records of the students' progress and final results.

CERTIFICATES

When a student completes the requirements for a certificate the college should apply, on the form provided, to the Director, Applied Arts and Technology Branch, Department of Education, for the appropriate certificate.

If a student completes an A.T.E.C. program, evaluated by the college, as equivalent to its regular day-school program, it is recommended that the college award its regular day-school diploma.

BOARDS OF EDUCATION

In those cases where after September 1968, the Advanced Technical Evening Class program continues to be administered by a Board of Education the adminstrative procedures as outlined in the booklet A.T.E.C. No. 1-1965 will remain in effect.

ENQUIRIES

Applications for further information should be addressed to the Director, Applied Arts and Technology Branch, Department of Education, 55 Eglinton Avenue East, Toronto 12, Ontario.

APPENDIX

The following information, taken from the publications of the A.P.E.O., is included for the general guidance only of students wishing to meet the educational requirements for certification as Engineering Technologists. For full details of the certification program students should write to the A.P.E.O., 236 Avenue Road, Toronto 5.

SYLLABUS FOR
MECHANICAL ENGINEERING TECHNOLOGY — 1968

SUBJECTS REQUIRED FOR CERTIFICATION (Alphabetically)	PREREQUISITES
* Business Communications (English I)	Grade 12 English
* Business (One of the following two subjects) "Economics or Industrial Management"	
* Chemistry (General)	Grade 12 Chemistry
Descriptive Geometry	
* Electrical Fundamentals	Mathematics I
Electrical Systems	Electrical Fundamentals
Foundry Technology I	Chemistry (General) (preferable but not compulsory)
Foundry Technology II	Foundry Technology I
Industrial Hydraulics	Mechanics II
Introduction to Computers	Mathematics I
x Machine Design	Mechanics of Materials I, Mechanics II and Technical Drawing
* Mathematics I	Grade 12 Mathematics
* Mathematics II	Mathematics I
* Mathematics III	Mathematics II
* Mathematics IV (ONE of the following subjects)	
Advanced Calculus	Mathematics III
or	
Numerical Methods and Digital Computations	Mathematics III
or	
Statistics I	Mathematics II

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*	Mechanics I	Mathematics I
*	Mechanics II	Mechanics I and Mathematics III
X	Mechanics of Fluids	Mechanics II
*	Mechanics of Materials I	Mechanics I and Mathematics II
X	Mechanics of Materials II	Mechanics of Materials I and Mathematics III
*	Metallurgy	Chemistry (General) (preferable but not compulsory)
	Metrology	Mathematics I and Technical Drawing
*	Physics I	Mathematics I
*	Technical Drawing	
*	Technical Report (Page 5, Note 3)	English I
X	Theory of Machines	Mechanics II
X	Thermodynamics	Physics I and Mathematics III
	Tool Design	Technical Drawing and Mechanics of Materials I
	Welding Technology	
	Workshop Technology I	Mathematics I
	Workshop Technology II	Workshop Technology I and Mathematics III

1. Obligatory subjects indicated by *.
2. At least FOUR of the subjects marked X are obligatory but can be selected by the candidate.
3. To make up the remainder of the required 21 subject credits, the candidate should select subjects related to his chosen field of Technology. The remaining options of Mathematics IV may be used for this purpose.

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SYLLABUS FOR ELECTRICAL ENGINEERING TECHNOLOGY — 1968

	SUBJECTS REQUIRED FOR CERTIFICATION (Alphabetically)	PREREQUISITES
*	Business Communications (English I)	Grade 12 English
*	Business (One of the following two subjects)	
	Economics or Industrial Management	
*	A.C. Circuits	Electrical Fundamentals, Mathematics II
*	Chemistry (General)	Grade 12 Chemistry
XB	Computer Control	Electronic Fundamentals, Mathematics IV (Advanced Calculus or Numerical Methods and Digital Computations — both preferred)
	Electrical Control Systems I	A.C. Circuits, Electrical Equipment
XA	Electrical Control Systems II	Electrical Control Systems I Mathematics IV (Advanced Calculus)
XA	Electrical Equipment	A.C. Circuits
*	Electrical Fundamentals	Mathematics I
XA	Electrical Measurements	A.C. Circuits
*	Electronic Circuits	Electronic Fundamentals
*	Electronic Fundamentals	Electrical Fundamentals, Mathematics II
XB	Industrial Electronics	Electronic Circuits
*	Mathematics I	Grade 12 Mathematics
*	Mathematics II	Mathematics I
*	Mathematics III	Mathematics II
*	Mathematics IV (One of the following — see Note 1.)	
	(a) Advanced Calculus, or	Mathematics III
	(b) Numerical Methods and Digital Computations, or	Mathematics III

	(c) Statistics I	Mathematics II
	Mechanics I	Mathematics I
*	Physics	Mathematics I
	Power Systems	A.C. Circuits, Electrical Equipment
*	Technical Drawing	
*	Technical Report (Page 5, Note 3)	English I

1. Obligatory subjects indicated by *.

2. At least 3 of the subjects marked X are obligatory. For your convenience the X subjects have been divided into A and B groups; thus, a candidate who selects the A group should complete all three A group subjects while a candidate who selects the B group should complete the two subjects from this group and one from the A group.

3. To make up the remainder of the required 21 subject credits, the candidate should select subjects related to his chosen field of Technology. The remaining options of Mathematics IV may be used for this purpose.

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SYLLABUS FOR ELECTRONICS ENGINEERING TECHNOLOGY — 1968

SUBJECTS REQUIRED FOR CERTIFICATION (Alphabetically)	PREREQUISITES
* A.C. Circuits	Electrical Fundamentals, Mathematics II
* Boolean Algebra and Digital Computers	Mathematics III
* Business Communications (English I)	Grade 12 English
* Business (One of the following) Economics or Industrial Management	
x Chemistry (General)	Grade 12 Chemistry
* Communications	Electronic Circuits and Mathematics IV (Advanced Calculus)
x Communications Systems	Communications, Pulse Circuits
* Computer Technology	Boolean Algebra and Digital Computers, and Pulse Circuits
* Electrical Fundamentals	Mathematics I
* Electronic Circuits	Electronic Fundamentals and A.C. Circuits
* Electronic Fundamentals	Electrical Fundamentals and Mathematics II
* Electronic Instrumentation	Pulse Circuits
x Electronic Systems	Pulse Circuits
* Feedback Control Systems	Computer Technology
* Mathematics I	Grade 12 Mathematics
* Mathematics II	Mathematics I
* Mathematics III	Mathematics II
* Mathematics IV Advanced Calculus	Mathematics III
x Numerical Methods and Digital Computation	Mathematics III
* Physics I	Mathematics I
* Pulse Circuits	Electronic Circuits and Mathematics III

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*	Solid State and Component Technology	Physics I, Electrical Fundamentals
x	Statistics I	Mathematics II
x	Technical Drawing	
*	Technical Report (Page 5, Note 3)	English I

1. Obligatory subjects indicated by *.

2. To make up the remainder of the 21 required subject credits, the candidate should select two subjects related to his chosen field of Technology.

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SYLLABUS FOR
INDUSTRIAL ENGINEERING TECHNOLOGY — 1968

SUBJECTS REQUIRED FOR CERTIFICATION (Alphabetically)	PREREQUISITES
* Business Communications (English I)	Grade 12 English
* Chemistry (General)	Grade 12 Chemistry
Data Processing	Introduction to Computers, Numerical Analysis
* Economics	
* Electrical Fundamentals	
x Electrical Systems	Electrical Fundamentals
x Electronic Fundamentals	Electrical Fundamentals
x Industrial Electronics	Electronic Fundamentals
† Industrial Organization	
† Industrial Psychology	
† Industrial Relations	
Introduction to Computers	Mathematics I
x Machine Design	Mechanics of Materials I Mechanics II and Technical Drawing
† Management Accounting	Mathematics I
* Mathematics I	Grade 12 Mathematics
* Mathematics II	Mathematics I
* Mathematics III	Mathematics II
* Mathematics IV (ONE of the following subjects)	
Statistics II	Statistics I
or	
Numerical Analysis	Introduction to Computers
or	
Advanced Calculus	Mathematics III
* Mechanics I	Mathematics I
x Mechanics II	Mechanics I and Mathematics III
* Mechanics of Materials I	Mathematics II and Mechanics I
Metrology	Mathematics I, Technical Drawing
Operations Research	Statistics I and Mathematics III

	Plant Layout and Materials Handling	
*	Physics I	Mathematics I
*	Production Control	Mathematics I
	Quality Control	Statistics I
*	Statistics I	Mathematics II
	Systems and Procedures	
*	Technical Drawing	
*	Technical Report (Page 5, Note 3)	English I
x	Tool Design	Mechanics of Materials I
	Value Engineering	
†	Wage and Salary Administration	
*	Work Study	Mathematics I
x	Workshop Technology I	Mathematics I

1. Obligatory subjects indicated by *.

2. Each candidate must choose TWO of the subjects marked X, and any THREE of the subjects not marked with an *. These THREE subjects may include the remaining options of Mathematics IV and those subjects marked†.

3. To make up the remainder of the required 21 subject credits, the candidate should select a subject related to his chosen field of Technology.

4. A candidate is permitted to use only two of the subjects marked † as academic credits towards the Engineering Technician level of certification.

5. This Technology embraces all of the branches of the Certification Program; therefore, candidates may select technical courses from another syllabus of this program in order to meet the requirements for basic engineering technology subjects. Thus, for example, a candidate working in Industrial Technology in the Civil Field may select civil subjects from the Civil Syllabus or conversely a candidate working in Industrial Technology in the Chemical field may select chemical subjects from the Chemical Syllabus.

Note: For information relating to other technologies, students should write to the A.P.E.O.